

- [c1] 1. A rectifier assembly comprising:  
a plurality of semiconductor diodes, each diode having  
an axis defined by an anode and a cathode;  
the diodes disposed in an axial linear array;  
each two axially adjacent diodes electrically and mechanically connected to each other by a metal plate, each of the diodes connected to the metal plate by solder material, each such connection using a full diode end surface;  
the metal plates fixed in relative position by a mounting block;  
each diode exposed to surrounding fluid except at its end surfaces.
- [c2] 2. The rectifier assembly of claim 1 wherein each two adjacent diodes are connected anode-to-cathode, whereby the assembly comprises a two-terminal high-voltage rectifier.
- [c3] 3. The rectifier assembly of claim 1 wherein the surrounding fluid is air.
- [c4] 4. The rectifier assembly of claim 1 wherein the surrounding fluid is oil.

- [c5] 5. The rectifier assembly of claim 1 wherein the number of diodes is a multiple of six, and wherein interconnections are provided with the metal plates, whereby the assembly comprises a three-phase bridge rectifier.
- [c6] 6. The rectifier assembly of claim 1 wherein the solder material is high temperature solder material.
- [c7] 7. The rectifier assembly of claim 7 wherein the high temperature solder material has a melt point greater than 275 degrees C.
- [c8] 8. The rectifier assembly of claim 1 wherein the diodes are hermetically sealed diodes.
- [c9] 9. The rectifier assembly of claim 1 wherein the diodes are silicon diodes.
- [c10] 10. The rectifier assembly of claim 1 wherein each diode defines a respective plane perpendicular to its axis, and wherein for each diode of the assembly, no other diode of the assembly lies within its respective plane.
- [c11] 11. A rectifier assembly comprising:  
m times n semiconductor diodes, each diode having an axis defined by an anode and a cathode, n being at least two;  
the diodes disposed in n axial parallel linear arrays of m

diodes;

each two axially adjacent diodes electrically and mechanically connected to each other by a metal plate, each of the diodes connected to the metal plate by high-temperature solder material, each such connection using a full diode end surface, each metal plate extending to form a part of each of the  $n$  axial arrays, each metal plate thus contacting on one face with  $n$  diodes and contacting on its other face with  $n$  diodes;

the metal plates fixed in relative position by a mounting block;

each diode exposed to surrounding fluid except at its end surfaces.

[c12] 12. The rectifier assembly of claim 11 wherein each two axially adjacent diodes are connected anode-to-cathode, and wherein each metal plate thus contacts on one face with anodes of diodes and contacts on its other face with cathodes of diodes, whereby the assembly comprises a two-terminal high-voltage rectifier.

[c13] 13. The rectifier assembly of claim 11 wherein the surrounding fluid is air.

[c14] 14. The rectifier assembly of claim 11 wherein the surrounding fluid is oil.

- [c15] 15. The rectifier assembly of claim 11 wherein the number of diodes is a multiple of six, and wherein interconnections are provided with the metal plates, whereby the assembly comprises a three-phase bridge rectifier.
- [c16] 16. The rectifier assembly of claim 11 wherein the solder material is high temperature solder material.
- [c17] 17. The rectifier assembly of claim 17 wherein the high temperature solder material has a melt point greater than 275 degrees C.
- [c18] 18. The rectifier assembly of claim 11 wherein the diodes are hermetically sealed diodes.
- [c19] 19. The rectifier assembly of claim 11 wherein the diodes are silicon diodes.
- [c20] 20. The rectifier assembly of claim 11 wherein each diode defines a respective plane perpendicular to its axis, and wherein for each diode of the assembly,  $n-1$  other diodes of the assembly lie within its respective plane.
- [c21] 21. The rectifier assembly of claim 11 wherein  $n$  is two.